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ABSTRACT

This report is divided into two parts: recommendations for the proposed information center and a description of the feasibility study. The rationale for the center, current information problems, and the problems of the information seeker are discussed, and the proposed program is outlined. Recommendations are made concerning the center's role, subject scope, aspects of international environmental policies, interfaces with other systems, potential users of the center, functions of the center, proposed in-house database, information use seminars, information resources, and management of the center. Aspects of the feasibility study include specific objectives, time table, conceptual framework, definitions, levels of information service, characteristics of environmental literature, and assessment of need for the proposed center. Appendices present the report on the information need assessment study, which contains the questions used in the survey, and a list of additional appendices that were not reproduced due to cost limitations. (JD)

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INFORMATION CENTER FOR INTERNATIONAL ENVIRONMENTAL POLICIES

FINAL REPORT

to the

SIERRA CLUB, OFFICE OF INTERNATIONAL ENVIRONMENT AFFAIRS

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Marta L. Dosa

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

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January 1979

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PREFACE

Begun on March 1, 1978, this study has been designed to examine the need for a library and information system in the field of international environmental policies. The feasibility study, initiated by Patricia J. Scharlin, Director of the Sierra Club Office of International Environment Affairs, surveyed information needs, identified potential user groups and made recommendations for information resources and programs.

In accordance with the agreement between the Sierra Club and myself as consultant, the study was "to take up to three months of working time and was to be completed within a period ending no later than December 31, 1978." A Progress Report covering activities from March 1,1978 to June 30, 1978, was submitted on July 10, 1978. The Report on the Information Need Assessment Study was presented to the Advisory Committee and invited guests in a meeting in New York on October 19, 1978. Another meeting of the Advisory Committee and other experts took place on December 13, 1978, in New York, when the draft Final Report was presented. With the completion of the project on December 31, 1978 and the incorporation of some of the suggestions made by participants at the December 13, meeting into the recommendations, the present report was finalized.

Patricia J. Scharlin and Joan Byalin from the Office of International Environment Affairs, International Earthcare Center, facilitated all phases of the study. I greatly appreciated their enthusiasm and cooperation The Advisory Committee consisted of:

Mary Anglemyer, Consultant; former librarian, Woodrow Wilson International Center for Scholars

Dr Whitman Bassow, Executive Director, Center for International Environmental Information

Vivian D Hewitt, Librarian, Carnegie Endowment for International Peace; President, Special Libraries Association

James G. Kollegger, President, Environment Information Center, Inc.

George Moss, Library Director, United Naitons Institute for Training and Research

Nina Root, Chief Librarian, American Museum of Natural History

Patricia J Sharlin, Director, Sierra Club Earthcare Center

Talbott Spence, Director, School Programming and Teacher Training, Wave Hill, Inc.

Harry Winton, Special Fellow, United Nations Institute for Training and Research

I am grateful for their insights and creative suggestions. Mr. Harry Winton's untimely death left us all with a deep sense of loss and sadness.

As authorized by the Sierra Club, I had the help of several Research Associates in carrying out the study. Without their competency and support this project could not have become a reality. Elizabeth A Brindle, Doctoral Candidate, School of Information Studies, Syracuse University, headed the formal Information Need Assessment Survey. Connie Wisniewski, Information Manager, General Electric Company, Syracuse, N.Y., advised us on budget matters for the proposed information center. Patsy Faust conducted interviews in New York during the first phase of the study Lois Korzendorfer and Marge Warpinski in Washington, D.C., and Susan McMullin, Mary Neighbours, Mary Reinke and Dale Smith in Syracuse, N.Y., assisted in the review of information resources relevant to international environmental policies.

I am indebted to all those individuals in the environmental and information communities whose encouragement made this project a joy.

Marta L. Dosa
Syracuse University
Syracuse, N.Y.
January, 1979

INTRODUCTION

The conceptualization of the proposed information facility underwent several changes during the study. Originally, the Sierra Club's "Proposal for a Survey of Requirements for Establishing a Library on International Environmental Affairs" envisioned a special library or information center. At subsequent meetings with members of the expanded Advisory Committee and other invited guests, several alternative approaches to an information service were suggested. For instance, a fee-based "system of systems", an "information brokerage" and a "self-supporting" information center were mentioned. In addition to the Information Need Assessment Study conducted by this project, an extensive market survey was also suggested.

This extremely wide spectrum of notions, ranging from a traditional library subsidized by governmental or private funds and serving all who need its information free of charge, to a market-based information service available to those who can pay for it, is not an unusual phenomenon in today's information world. In fact it is through this creative diversity that the societal role of information forced itself into the collective consciousness. In 1975, a report of the National Commission on Libraries and Information Science, referring to the dissemination of federally generated information, quoted a variety of views that symbolize the national scene:

> "While publicly supported library functions providing free information should not be abolished, it should be recognized that there is no such thing as free information. The information industry is equipped to reformat information to fit the needs of users.." (The for-profit sector view, p. 75).

> "It is not in the public interest to vest control of dissemination of government-generated information in the hands of individual entrepreneurs who might raise prices to prospective users." (The government view, p. 78).
>
> For professional societies, "there is no way to obtain funds necessary to 'mechanize' their information dissemination programs except from government agencies. Without mechanization, they cannot cope with the proliferation of information in their fields...They need the help of the Federal agencies in obtaining funds for preliminary studies necessary to improve their information services." (The professional society's view, p. 79).

In its final recommendations, the same report emphasized the principle of free access to both the use and the production of information. A national information policy, according to the report, should "encourage access to information and information systems by all segments of society" as well as "maintain pluralism in information systems and strengthen the private sector so that, through competition, innovation can be encouraged" (National Commission on Libraries and Information Science, 1974, p. 202).

It was clear that the suggestions emerging from the meetings attended by various members of the Advisory Committee and other invited guests, reflected a nation-wide, indeed global, phenomenon of increasingly diversified options and views concerning information transfer. The sharing and consideration of various alternatives at our meetings enhanced the process of the study.

More and more, people began to see the proposed information center as a creative mixture of the best elements of a library/document collection and a high-speed computer-based information search service. Hard-to-obtain environmental policy documents of international organizations and foreign governments would be available in the library free of charge. A variety

of dissemination and reproduction methods would be considered and their legal and economic implications weighed. Whenever other existing information systems could be used, their services would not be duplicated but utilized through referral. Search of commercially available data bases would be offered for a fee. Continuous close monitoring of the service and user feedback would assure both cost analysis and evaluation. Above all, the center would represent the only one-stop information facility in this complex field where currently information searching is extremely fragmented, time consuming and unsatisfactory.

This report consists of two parts. Part I contains recommendations for the proposed information center. Part II is a description of the feasibility study.

PART I. RECOMMENDATIONS FOR PROPOSED INFORMATION CENTER

1. The feasibility study demonstrated by both quantitative and qualitative means a need for an information center in the field of international environmental policy issues. It is recommended that a center be established on an experimental basis to allow for development, operation and evaluation. The pilot program should be carried out over a period of at least three years with option to continue it for an additional two years.

2. The center should focus on the kinds of international documents, data files and other information sources which are not readily obtainable through other information systems. The system, comprising the document collection and reference, the data base searching capability, the referral function and the user feed-back mechanism should be designed and evaluated by a high quality information professional. This would assure that the pilot program would produce enough valid data on the usefulness, cost and potential of the center to support a sound decision concerning its future at the end of the experimental period.

3. The center would serve decision makers, managers, researchers, businessmen, educators, subject specialists, professional practitioners, media personnel and the general public. A three-pronged approach would be developed:

   a) design, operation and evaluation of a user-responsive information system including a specialized library and a computerized information retrieval component,

b) research on information needs and uses of the system,

c) an educational component in the form of information user seminars and a public awareness program.

4. The facility would function as "a system of systems" participating in networks and utilizing the service and resources of information clearinghouses, libraries and computerized information systems. This "brokerage" function is an essential characteristic of the proposed center. It is expected to ensure interaction with other information facilities and savings for the center. During the pilot phase, the information available from the center would be free, except for data base searches, copying costs and interlibrary loan.

5. The pilot program would need a home base where a significant degree of commitment to its goals would be present. The Sierra Club International Earthcare Center, having initiated and launched the idea, should be in charge of the pilot information center.

6. At the end of the pilot phase, evaluation data would be used to indicate the use of and future need for the center and actual operational costs. In case of positive findings, there would be several alternative modes for the continuation of the service:

a) further development of various fee-based service components (abstracting, current awareness service, on-demand searches of data bases, user instruction) and commercial marketing of the services,

b) federal subsidy and redesign of the center as an information clearinghouse or center within a federal agency, actively connecting the operation of the facility to a company in the private sector,

c) joint venture by several international environmental organizations.

7. Funding for the pilot program would be solicited by the Sierra Club from public and private sources. Potential funding sources should recognize the national and international importance of the proposed information center. The location of the pilot phase could be one of the most important developments in the recent history of policy-related information systems.

In this respect, I quote Dr. Robert A. Beck, a biological chemist: "The 'test of the market place' is the ultimate procedure to determine which vehicles of retrieval publication should survive. A coherent and logical program of subsidy and support is essential to ensure the availability of today's research results to tomorrow's scientists. The value of sound, critically evaluated and reported work in the future of science cannot be reliably estimated except in the future" (Beck, 1971).

This is even more true in the policy area where today's data are needed by today's decision makers.

RATIONALE

1. The last decades brought a significant increase in the importance attached to environmental policy both as a governmental function and a public concern. Yet environmental information systems and libraries emphasize the scientific, technical and legal aspects; less attention is given to socioeconomic data sources and policy-oriented information, such as documentation showing alternative solutions to a problem.

2. An example of an international policy issue will demonstrate such needs. Controversial environmental policy issues arise from the international implications of the National Environmental Policy Act. Some federal agencies file voluntary international EISs. In January 1978, the Council on Environmental Quality proposed regulations on international environmental impact statements. This and the ensuing interagency review created intense controversies involving foreign policy and economic questions. The Congress considered international EISs in relation to the Nuclear Non-Proliferation Act and the Export-Import Bank amendments. An Executive Order signed on January 5, 1979, requires environmental review of certain major governmental actions which have effects outside the United States. Section 2 of the Executive Order mandates a program of information exchange with other countries. There is an acute need to identify, collect and access international documentation on all of these issues.

3 The rise of the policy sciences created a great number of policy research and teaching centers at academic institutions in this country and abroad (Policy analysis syllabi, 1978). These interdisciplinary programs have been building their own collections and information systems. A national computer network, EDUNET, links some universities to help them share resources such as Dartmouth College's large files of social science data. However, information about the hundreds of document and report collections at university departments and research organizations that pertain to policy research and analysis is not readily available.

4. Non-governmental and public interest organizations are responsible to their membership and constituencies for the efficient dissemination of timely information. To fulfill this function, they need two kinds of policy information: (a) current news on all sorts of topics and (b) documentation of certain specialized topics. The Center for International Environmental Information is a source for the first kind of information, but there is no accessible source for the second kind. There is a need for an information center/library where one can call with a question such as: "Where can I find out about international environmental impact statements?"

5. Corporations depend on a number of internal sources for policy-related information: their own management information system, technical information center, legal department, international department and technical library, just to mention a few. It is a time consuming, uneconomical and often ineffective process to piece together the needed information. External sources are even more fragmented. Although scientific and technical information may often be obtained with less difficulty, there is evidence in the literature that policy-related information, especially pertaining to international affairs, causes serious problems. To collect policy information from a number of sources may mean delays in or inadequate basis for decisions.

6. There is a missing link in the provision of information by either private enterprise or libraries. Bibliographic data bases such as ENVIROLINE and ENERGYLINE are available for searching, and various library collections may be tapped for books, journals and other printed materials. But many users are unaware of the sources, have no time to conduct searches or are frustrated by information overload. These problems grow in proportion to the interdisciplinary nature of the topic. Documents of intergovernmental or international nongovernmental organizations are especially difficult to identify and obtain. An intermediary link is needed in the form of a dynamic information

center that would access various systems, organizations and libraries on behalf of the user.

7. The provision of literature searches and library service alone would not justify the establishment of a new facility. Research and education are indispensable components of the proposed center. The system should serve as a continuous testing ground for the development of information-related methodologies and evaluative measures. It would develop appropriate analyses for cost effectiveness. On the other hand, the educational component would develop seminar curricula and orientation programs both for face-to-face encounters and packaged information. This, together with a strong public relations program will be essential in order to reach potential users.

CURRENT INFORMATION PROBLEMS

- There are many libraries and information systems designed for environmental data and literature; there are a few containing international policy information; but there is no one source focussing on international environmental policies. Consequently managers, planners, scholars and practitioners have to waste time, funds and energy to locate information that is not even always relevant.
- Intergovernmental and international nongovernmental organizations and foreign governments produce a steady flow of documents on development planning, socioeconomic measurements, environmental legislation, environmental assessment and technology policy. Although all of these documents have some potential value for persons who need more understanding of one environmental policy issue or another, no one organization or system can collect and analyze them all. This flow of haphazard information needs to be managed on behalf of the user. Professional skills are needed to select and organize documents of primary relevance if necessary. (For example, working liaison would be built with the International Environmental Law Information System in Bonn, and the Science and Technology Policy Information Exchange System (SPINES) in Paris).
- Bibliographic and numerical data bases pertaining to environmental issues are available for on-line searching (examples are ENVIROLINE, a bibliographic data base available through both Lockheed and System Developjent Corporation, and STORET, the National Water Quality Information System from the Environmental Protection Agency).

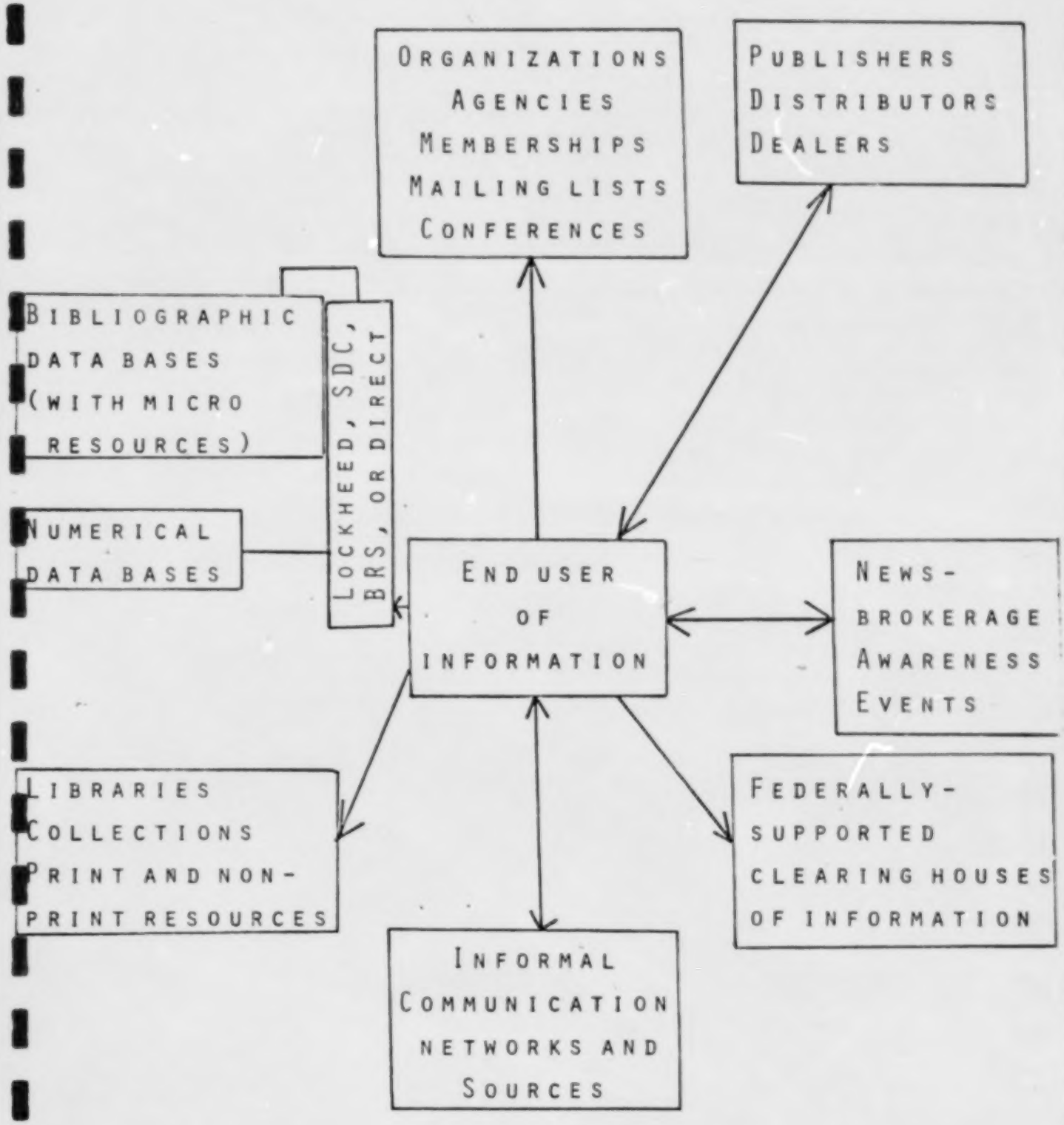
While environmental quality data, if packaged properly, might serve as a decision-making tool, it is in the bibliographic data bases that references to some of the international policy documents are embedded. At this time, however, there is no international environmental policy-related thesaurus in existence. Without specialization and familiarity with the language of policy analysis, computer searches yielding little relevant information can waste a great deal of money.

- The knowledge base of environmental policy formulation is growing. More and more disciplines are entering into the interplay of environmental problem solving. Neither researchers nor practitioners can hope to keep abreast of new findings and developments. The organization of this expanding inter-disciplinary document literature already presents a considerable problem. But if the task is postponed, in the future it will become much more expensive and unsatisfactory.
- In recent years, the role of developing countries in international relations including environmental cooperation, has become increasingly crucial. The International Referral System of the United Nations Environment Programme, located in Nairobi, Kenya, is making an effort to persuade developing countries to establish national focal points for the IRS. However, the IRS is a referral system and does not collect documents from developing countries. There is an urgent need to identify, obtain and disseminate such documents in the United States.

THE PROBLEM OF THE INFORMATION SEEKER

It has been often said that decisions are only as good as the information upon which they are based. The end user of environmental policy information faces a complex array of haphazardly growing, sometimes overlapping and sometimes badly lacking information resources Users can be overloaded by irrelevant materials and find that good sources can become obsolete even before discovered by them.

The following figure represents a person's potential information sources. Some of them will bring the information to the attention of users (two-way relationships) and others must be tapped by users (one-way relationships):


ORGANIZATIONS
AGENCIES
MEMBERSHIPS
MAILING LISTS
CONFERENCES
PUBLISHERS
DISTRIBUTORS
DEALERS
BIBLIOGRAPHIC DATA BASES (WITH MICRO RESOURCES)
LOCKHEED, SDC, BRS, OR DIRECT
NUMERICAL DATA BASES
END USER OF INFORMATION
NEWS-
BROKERAGE
AWARENESS
EVENTS
LIBRARIES
COLLECTIONS
PRINT AND NON-PRINT RESOURCES
FEDERALLY-SUPPORTED CLEARING HOUSES OF INFORMATION
INFORMAL COMMUNICATION NETWORKS AND SOURCES

INFOGRAM

PROPOSED PROGRAM

PHASE I (12 months)

PLANNING

Finalization of site

Establishment of Board of Directors

Recruitment of personnel

Start-up budgeting

System design

Development of in-house data base

Development of thesaurus

Formulation of policies

Contacts with other systems and centers

Development of the reference and
document collections

Arrangements with commercial and
governmental retrieval services

Establishment of contacts, suppliers,
mailing lists

PHASE II (12 months)

OPERATIONALIZATION

Expansion of personnel

Public relations program

Inception of services:

Current awareness newsletter

On demand literature searches

Expertise directory

Continuous updating of in-house data base

Information user seminars

PHASE III (12 months)

EVALUATION

Operation of the center continued

Information user seminars continued

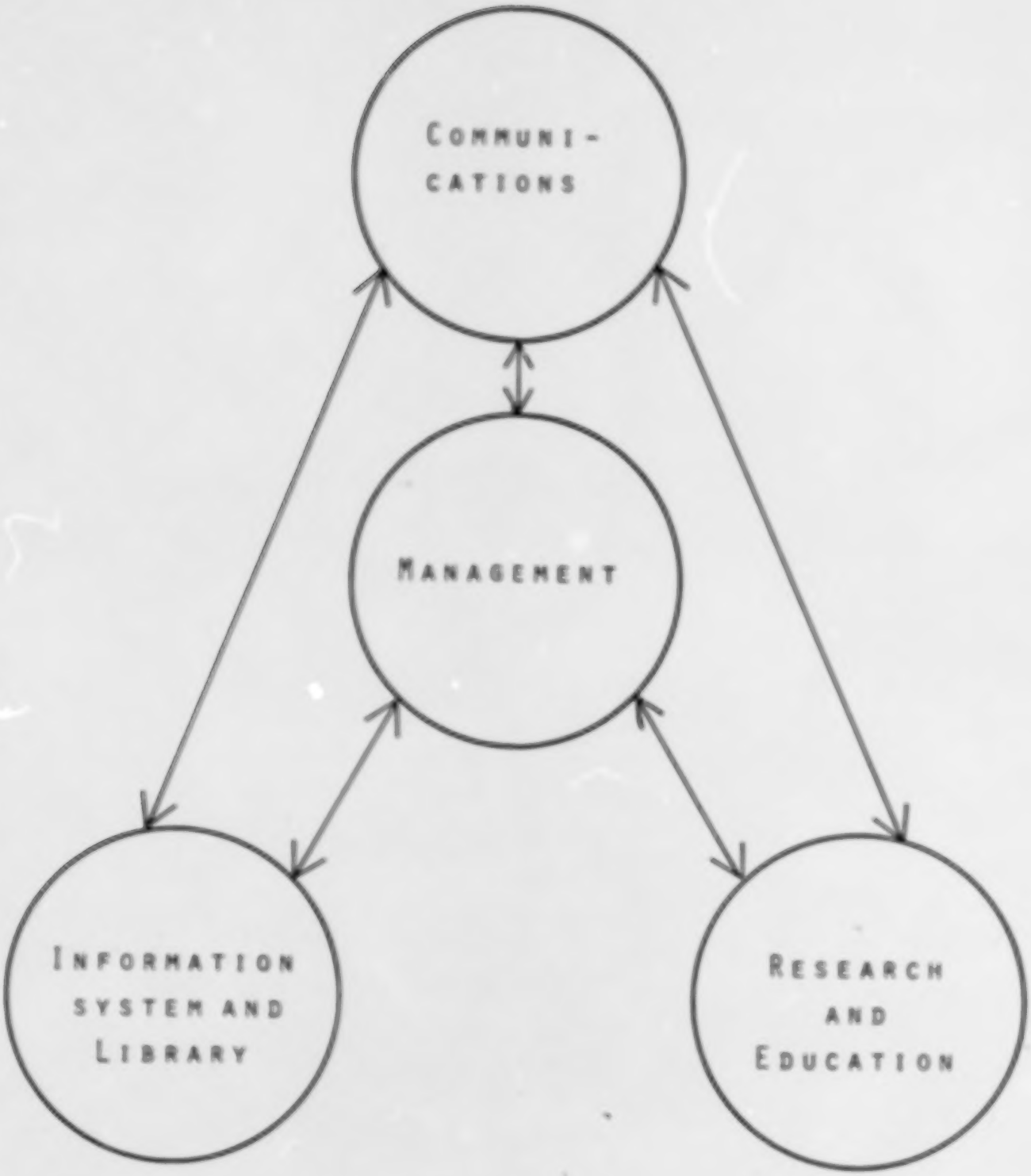
Development of instrument for evaluation

Collect evaluation data from users of the system

Analyze data

Analyze costs

Further planning


COMMUNI-
CATIONS
MANAGEMENT
INFORMATION
SYSTEM AND
LIBRARY
RESEARCH
AND
EDUCATION

PROPOSED CENTER FOR INTERNATIONAL ENVIRONMENTAL POLICY INFORMATION

ROLE

The proposed center is envisioned as a dynamic information support system to people working in this interdisciplinary field. The innovative, client-oriented service would utilize:

1) communication techniques to reach the widest possible audience,
2) management techniques and technologies to provide timely and relevant information and documents,
3) information system and library networks to avoid duplication of resources and services available elsewhere,
4) research methods to assure empirical evaluation of the service

The main functions of the center will be to disseminate information, to respond to queries and reduce the complex array of resources into manageable answers and to help locate relevant documents when needed.

Two levels of information handling are suggested:

a) Problem-solving information and data for decision makers, researchers and practitioners;
b) General informational materials summarizing policy-issues in non-technical language for the public.

The center would combine:

1. An information search and dissemination service;
2. A library consisting mainly of hard-to-acquire international and foreign environmental policy documents and reference works.

SUBJECT SCOPE

Delineation of the subject coverage of the center will be the first important step in its design. One of the purposes of the thesaurus would be to establish the scope and limits of the field.

The figure below, "The Knowledge Base of International Environmental Politics" represents three potential approaches to describing the topic:

1) Policy-related inputs (theories, processes, methods, etc.).
2) Factors (atmosphere and climate, Oceans, seas, estuaries, etc.).
3) Information-producing sources (Non-governmental organizations, Intergovernmental organizations, foreign governments, etc).

Based on this conceptualization of the subject field, three principles should be observed:

1) The most practical start for building a collection of international documents will be the identification of those organizations, foreign governmental agencies and institutes from which documents should be intensively collected.
2) The center should not attempt to handle data and information that are necessary for environmental policy making, planning and management. Rather, the center should be used as information about the international environmental policy process. In other words, demographic data, technical data or economic facts that are available elsewhere will not be collected.
3) The center would be concerned with the subject fields of already existing information centers and libraries in order to avoid duplication.

*Examples only based on UNEP/IRS subject categories.

The Knowledge Base of International Environmental Policies

ASPECTS OF INTERNATIONAL ENVIRONMENTAL POLICIES

The following categories (listed in an abbreviated version in the figure "The Knowledge Base of International Environmental Policies") help to delineate the subject coverage of the proposed center:

Theory of international environmental policies

Ethnics and normative orientations

Cultural and historical aspects

The policy process and methodologies

Sociology of researchers and policy makers

Developmental aspects (urbanization, industrialization)

Scientific aspects (science policies and environment)

Socioeconomic aspects

Legislation, regulations, judicial actions

Planning, programming, monitoring

Management

Forecasting, projections, futurology

Measurements, environmental indicators assessment

Technology transfer

International environmental relations

- Treaties, conventions
- Conferences
- Joint progress

International organizations

Public awareness and participation

Education in the policy sciences

Communications (mass media, public relations, interpersonal communication, etc.)

INTERFACES WITH OTHER SYSTEMS

The networking role of the proposed center cannot be overemphasized. Researchers today are becoming used to electronic consultation across oceans. Both the practice and the literature of computer conferencing is growing. In the face of mounting constraints of economics and time, long-distance conferencing and information sharing often take the place of travel. The resources of the proposed center will be substantially greater than its own collection because of networking and referral arrangements.

For our purpose, we will define an "information network" as information dissemination through the sharing of information resources, and the linking of the human expertise and information products of different organizations and information systems. Information sharing can take place (1) by electronic means, for instance in the case of computer communication networks which support commercial data base services, (2) by a "personal information network" or the interconnection between people who depend on each other for the exchange of ideas, data and information, or by interinstitutional arrangements such as interlibrary loan. Technological and administrative links between different organizations and systems are formal, while interpersonal information networks among individuals are most often based on informal cooperation.

The proposed center would make use of a combination of the above modalities. On-line data base networks would be used for bibliographic searches in order to prepare individualized information packages for requestors. However, computer searches would be extensively supplemented by a document location service. If a request for a document or its microfiche version could not be filled by the center, users would be

referred to either a commercial microfiche service or a library whose collection is likely to contain the requested source.

To fufill this goal, the center would have to use a variety of innovative approaches to (1) understanding the needs of the users and (2) making cooperative arrangements with other information centers and libraries.

The understanding of the nature of each request and the situation of each individual who turns to the center would be facilitated by information counseling. Information counseling is the interactive process by which an information practitioner (a) assesses the information needs of a person or organization, (b) determines the optimal ways to fill such needs and assists the client in finding and using the source, and (c) assures systematic follow-up and feedback in order to evaluate the effectiveness of counseling. The process of filling information and data-related requests can be enhanced by tapping not only formal systems and libraries but also informal expertise and human resource networks.

Cooperative arrangements with libraries, information centers and clearinghouses would be developed during the first year, that is the planning phase of the program. The center would establish contact with programs such as the Solar Technology Transfer Program of Oak Ridge National Laboratory (Southeastern Library Association, 1978). Close links would be maintained with the Center for International Environment Information, a non-profit educational service that publishes the World Environment Report and operates a query service for the mass media. Users of the proposed policy information center would be regularly referred to this and other services, including commercial ones. The publications, data bases and full-text microfiche services of the Environment Information

Center, Inc. would be utilized by the new center rather than duplicating them.

Cooperation with federal libraries and information centers as well as with the libraries of the United Nations system would be of utmost importance. Examples of United Nations information resources include the Dag Hammerskjold Library, the Regional Economic Commissions, the UNEP Library and Documentation Centre, the UNEP Information and Referral System, the U.N. Fund for Population Activities, UNIDO, UNITAR, UNCTAD/ GATT, UNESCO, WHO, FAO, ILO and the UN Research Institute for Social Development Reference Centre.

The proposed center would need to acquire:

a) policy statements by various organizations on the sharing of environmental data, for example:

Loucks, O.L. and N. McElreath, A Position Paper on National Ecological Data Resources, Indianapolis, The Institute of Ecology, Holcomb Research Instutute, Butler University, 1978.

b) directories of libraries and information systems, for example:

United Nations Library, Directory of Libraries and Documentation Centers in the United Nations System, Geneva, Switzerland, 1978.

Capital Systems Group, Inc. Federal Environmental Data: A Directory of Selected Sources, 1977.

POTENTIAL USERS OF THE CENTER

Typologies of potential information users were developed on the basis of three activities:

1) Formal survey of information needs (A summary of findings is included in Part II of this report; a full report on findings is available upon request).

2) Informal interviews and discussions with environmentalists and librarians (A list of organizations and institutions which had been contacted is included in Part II of this report).

3) Results of former studies of potential users conducted by international information systems (Summaries included in Part II of this report).

Information systems in interdisciplinary areas find it more difficult to describe categories of potential audiences that systems designed for a traditional scientific discipline. For instance, the Oak Ridge National Laboratory's Solar Technology Transfer Program disseminates information to transfer agents identified by the Department of Energy. "These include architects, engineers, builders and contractors, state and city officials, bankers and lending agents, librarians, educators, and others to whom the public tends to turn for information" (Southeastern Library Association, 1978 b, p. 4).

In interdisciplinary areas, audiences of technological information overlap with audiences of policy information. A ten-year study of UNESCO's Science and Technology Policies Information Exchange System (SPINES) found that "the potential users of a scientific/technological information system are engaged in many different spheres of activities and have numerous centers of interest (government organizations, parliamentary groups, academic institutions, productive enterprises and international organizations" (United Nations Education, Scientific and Cultural Organization, 1974, p. 14). The study also noted that "One of the difficulties in determining user needs is that the potential users, widely spread as they are....are only vaguely conscious of what could be offered to them.

The proposed international environmental policy information center would be open to the general public. Emphasis would be on categories of potential users that emerged from our interviews as well as from the literature:

Planners and policy makers

Legislators and regulators

Managers, administrators, project directors

Professional practitioners in various fields

Researchers

Decision makers in industry and business

Educators

Members of special interest organizations

Members of public interest organizations

Government officials at various levels of government

Information practitioners, librarians

Consultants

The public

FUNCTIONS OF THE CENTER

A three-pronged approach is recommended, encompassing (1) an information system, (2) evaluation research and (3) an educational component.

1. The information system should provide the following products and services:

- a current awareness bulletin listing new trends, conferences, data sources and documents in international policy affairs,

- customized literature searches,
- information packages including bibliographic references, summaries of the content and indication of where the described documents or data may be obtained,
- assistance in locating the sources which might be available through commercial services or libraries,
- develop in-house data base (described below).

2. A research component would be responsible for:
   - on-going monitoring of use,
   - evaluation of information needs, use patterns and feedback from users,
   - development and testing of a thesaurus,
   - development of economic measurements for the evaluation of the system and analysis of costs.
3. An education component would include:
   - dissemination of public awareness materials,
   - seminars for information and data use (described below).

PROPOSED IN-HOUSE DATA BASE

Currently there are certain types of relevant information that are not available through existing data bases, information centers or libraries. One of the most significant functions of the proposed center would be the creation of a unique computerized directory. The data base would be constructed by utilizing a text-editor system which allows for easy corrections and updating. The following categories are recommended for inclusion. Emphasis would be on developing countries.

Ministries of environment

Science and technology policy making bodies

Technology assessment offices at the national level

Technology transfer information centers

Environmental policy research organizations

Socioeconomic data archives

Academic departments offering environmental policy studies

National conservation and environmental groups

INFORMATION USE SEMINARS

The objectives would be to:

- provide insight into the nature of the information acquisition process that can support an individual's work,
- become aware of new information and data sources,
- stimulate utilization of research findings by policy makers and practitioners by reviewing research in non-technical terms,
- bring individuals together from various professional backgrounds to facilitate the exchange of ideas.

INFORMATION RESOURCES

A) Types of documents by content

The center would collect documents which, as a group, are not acquired and made available by any other information center or library.

All the following examples are given in the context of international environmental policies:

- documents of intergovernmental organizations
- documents of international non-governmental organizations
- documents of foreign governments, especially developing countries
- analyses of environmental policies
- reports of policy-oriented organizations
- studies reporting policy research
- international treaties, conventions, agreements
- codes, international legal compilations
- documents relating to environmental assessment, measurement and indicators
- planning reports and projections

B) Data Bases

Data bases relevant to environmental issues are available through commercial retrieval services such as Lockheed, Systems Development Corporation (SDC) and Bibliographic Retrieval Systems (BRS). Attached is a list of selected bibliographic data bases indicating cost per hour of use.

There are other privately produced data bases that are not available through these three commercial systems, for instance TRISNET, a Transportation data base availbale through the BASIS retrieval system of Battelle Memorial Laboratories; the New York Times' INFORMATION BANK, and POPINFORM produced by Population Information Program at George Washington University Medical Center.

Federal agencies are the sources of other data bases not accessible on the three major commercial systems. For example, the Nuclear Safety Information Center data base is available from the Department of Energy, TOXLINE from the National Library of Medicine and Water Resources Abstracts from the Department of Interior's Office of Water Research and Technology.

C) Journals

This represents the third category of resources for the proposed center. A list of potential titles with current prices, is enclosed.

The following page is a representation of the information system indicating examples of information resources and examples of categories of potential information users.

UNIVERSE OF RESOURCES

- INTERGOVERNMENTAL ORGANIZATIONS...
- INTERNATIONAL NGOs.....
- FOREIGN GOVERNMENTS.....
- POLICY RESEARCH INSTITUTES.....
- UNIVERSITY DEPARTMENTS.....
- MULTI-NATIONALS.....
- INTERNATIONAL INFORMATION SYSTEM/EXAMPLES..
  - AGRIS(FAO).....
  - DEVSIS(IDRC)....
  - INIS(IAEA).....
  - IRS(UNEP).....
  - SPINES(UNESCO)..
- FEDERAL CLEARING HOUSES....
- BIBLIOGRAPHIC DATA BASES....
- NUMERICAL DATA BASES....
- SECONDARY INFORMATION SERVICES....
- EXPERTS.....
- SELECTED OTHER SOURCES....

DOCUMENTS AND COMPUTERIZED DATA BASES

RESEARCH

CENTER FOR INTERNATIONAL ENVIRONMENTAL POLICIES

USER SEMINARS

TWO LEVELS: REFERENCE, REFERRAL

INFORMATION USERS

- POLICY
  - .....MAKERS
  - .....PLANNERS
  - .....MANAGERS
  - .....SCIENTISTS
  - .....RESEARCHERS
  - ....TECHNOLOGIST
  - .....DEVELOPERS
  - .....FINANCIERS
  - .....LEGISLATORS
- EDUCATORS
- PUBLIC INTEREST
  - .....ADVOCATES
- SPECIAL INTEREST
  - .....ADVOCATES
- .....MASS MEDIA
- ..COMMUNICATORS
- PROFESSIONAL
  - ...PRACTITIONERS
- INFORMATION/ LIBRARY
  - ...PRACTITIONERS

MANAGEMENT OF THE CENTER

In the foregoing, major features of the center's programme and resources have been suggested. In summary, the center's ultimate goal, the provision of a one-stop information service on international environmental policy issues can be achieved only if the center (1) integrates successfully into the national and international information infrastructures, (2) becomes politically acceptable by highly diversified audiences, (3) can demonstrate high satisfaction on part of the users, (4) achieves maximum public awareness, and (5) demonstrates cost effectiveness.

To meet these challenges, an Information Manager with excellent qualifications in both communication and research skills should head the pilot program. Responsibilities would be similar to those in other centers (National Aeronautics and Space Administration, 1972).

Initial and on-going budgeting

Finalizing the policy and decision-making authority

Planning - assess new needs, priorities, changes

Development of the system

Research - projections and evaluation

Public relations and communications

Marketing - to those who seek information and to those who are unaware of benefits

Education - general awareness and information/data use skills

Data and information analysis in response of requests

Maintenance and evaluation of the in-house data base

Support services and equipment maintenance

Interfacing with other information facilities

Acquisition of information sources pertaining to the subject and the operation of the center

Overhead

Legal aspects - copyright, federal and international regulations, communications, data security

Evaluation of the effectiveness of services would be one of the most important functions. There will be a need to answer questions such as these: What are the criteria for maintaining the center? What are the benefits to the users? How was the information used?

A prototype instrument for the evaluation of an information system in another interdisciplinary policy-oriented area, developed at Syracuse University, is enclosed.

Three alternative budget models have been developed: (1) for a three-year phased pilot program, (2) for a permanent information center, and (3) for a small library. *

* Copies of the budget are available upon request.

PART II. REPORT ON THE FEASIBLILTY STUDY

SPECIFIC OBJECTIVES

1. Establish working definitions of key concepts;
2. Identify characteristics of information and data sources for environmental research, policy making and action;
3. Review existing information centers and libraries in the field by
   a. collection of directories and resource guides,
   b. consulting resource persons;
4. Conduct an information need assessment survey by
   a. use of a questionnaire,
   b. informal discussions with resource persons,
   c. review of studies preceding the design of selected international information systems.
5. Establish certain ranges of anticipated costs;
6. Make recommendations to the Sierra Club concerning the functions of the proposed information center;
7. Make recommendations for the phases and methods of implementation.

TIME TABLE OF THE FEASIBILITY STUDY

Phase 1, March - June 1978

Conceptualization, literature review, definitions

Identification of potential user populations

Identification of relevant collections and services

Development of survey instrument

Review of potential funding sources

Phase 2, July - September 1978

Information need assessment survey (conducted jointly with Sierra Club Earthcare Center)

Analysis of survey data

Preliminary report of survey results

Draft recommendations for proposed information center

Phase 3, October - December 1978

Costing of recommended resources and services

Drafting of the final report

Discussion of final report with Advisory Committee

Review of additional information needed.

***

Meetings with Advisory Committee and other invited guests at the Sierra Club Earthcare Center, New York:

February 27, 1978 Preliminary meeting with Advisory Committee

October 19, 1978 Report on results of the information need assessment survey

CONCEPTUAL FRAMEWORK

During the first month of the study, certain critical questions forced themselves to the surface:

- How do we define "environment"?
- How do we define "information"?
- How do we identify the parameters of an interdisciplinary knowledge base?

There are also questions of pragmatic and methodological nature:

- Where are the audiences to be surveyed and how can we reach them?
- Where will the proposed center draw the line between free information and priced information?
- How do we measure the value of data?

Such questions compelled us to look at the study in the broader framework that casts information at two levels: as a societal force and as a natural resource. In recent years it has been recognized by policy and decision makers that the availability of data and information has a increasing impact on social monitoring and the assessment of the quality of life. (Deutsch, 1978; American in the Seventies, 1978; Wessel, 1976).

Without the support of easily accessible information on policy-related international environmental affairs, individuals whose work is important for improving environmental quality, may find that:

- They can be trapped by the perspective of their own organization, agency or professional group;

- They don't have enough basis to perceive the effect of their own decisions and products (whether these are in the form of research results, laws, regulations, manufactured goods or services delivered to various publics) on other institutions and individuals;

- They don't have access to sufficient data with predictive value that would enable them to assess the future effect of their current activity;

- Working on programs that require the input of several disciplines, knowledge bases and policy directions, they don't have sufficient awareness of the potential contribution of fields beyond their own;

- They yield easily to crisis situations and media events because the difficulty of acquiring policy-related information prevents them from seeing interrelationships and the long-range effects of decisions.

DEFINITIONS

Because of the ambiguity of terminology used in relation to the "environment" and "information", it has been necessary to establish some working definitions:

ENVIRONMENTAL SCIENCE "Basic and applied inquiry about changes in environmental quality resulting from the activities of man" (Advances in Environmental Science and Technology, v 1.., 1969, p. 1).

ENVIRONMENTAL POLICY A plan for the protection and enhancement of the environment through legal, economic, scientific, educational and other means, based on a systematic consideration of all pertinent data and their relationships.

ENVIRONMENTAL MANAGEMENT "...to derive a strategy that will ultimately result in environmental quality, one must comprehensively consider the entire complex interacting environmental system within the context of operative socio-economic constraints." (Proceedings of the First US/USSR Symposium on Comprehensive Analysis of the Environment, EPA 1975).

PUBLIC POLICY ISSUE "A concern, situation, existing or potential practice that is considered controversial among various segments of society who represent different interests and approaches to the handling of that issue by governments."

DATA Numerical or bibliographic expression or description of basic facts.

NUMERIC DATA BASE or DATA BANK A retrieval system containing numerical information (e.g. demographic data, soil quality data, water pollution data, environmental indicators), in machine readable form.

BIBLIOGRAPHIC DATA BASE A retrieval system containing bibliographic information (e.g. indexed and abstracted journal articles, scientific papers, legislative source references), in machine readable form.

INFORMATION The total complex of data and facts people receive from the outside and which contributes toward their knowledge.

In pricing information, one is concerned with two interpretations of the concept:

The information product (books, films, data sets on discs, etc.)

The information process (analysis, evaluation, question negotiation, counseling, etc.)

KNOWLEDGE Information fused in one's mind with past experience and creative intuition.

In conducting the need assessment survey, it was important to clarify levels of potential information service. For example, in personal interviews during the first phase of the study, many individuals indicated that they don't have time for bibliographies and would prefer an "information package" combining a summary of the content of information or data set with reference to the location and availability of the source.

LEVELS OF INFORMATION SERVICE

1. Reference to a source (bibliographic reference, directory information, footnotes, citations, indexing and abstracting services, card catalog and other document surrogates)

2. Document delivery (Text in full or microform, a book, a report, a film, a cassette, a tape, etc.)

3. The information itself in summary form (The actual facts, information content or description of a data set, based on an analysis of the source)

4. Evaluated and interpreted information (Subjective evaluation of the content, advocacy, persuasion, etc.)

CHARACTERISTICS OF ENVIRONMENTAL LITERATURE

The following problems seem to thread themselves through the entire literature of the environment. They should be recognized and considered among the design criteria of a library or information center.

- The cross-disciplinary nature of research, professional work and public involvement in the policy process
- The differences in how various people perceive problems and propose priorities and solutions
- Peaks and valleys in public policy attention to these problems in various countries and within the same country, resulting in unevenness in the funding of research, information services and collection development
- Lack of models for studying information problems in certain sub-fields such as environmental economics, decision making processes, involvement of public choice groups, behavior, mass media, etc.
- Vulnerability of human emotions to political manipulation, conflicting interests of social groups and crisis situations
- Lack of consensus as to what kinds of data should be collected, in what form and at what level of accessibility
- Scattering of the literature in almost all types of information resources, including indexing and abstracting services, government documents, statistical sources, etc.
- The proliferation of new information services and systems, which need to be evaluated in the light of their use.

ASSESSMENT OF NEED FOR PROPOSED CENTER

As mentioned earlier, this activity consisted of three parts: (1) formal survey of information needs, (2) informal interviews, and (3) review of other feasibility studies.

1. Formal Survey of Information Needs *

The purpose of the survey was to find out if potential users of such an information center think it is needed, what kinds of information should be included, types of sources recommended for inclusion, types of service that should be provided, the charge for service, which languages the documents should be in, who should operate the center and where it should be located.

A total of 454 questionnaires were sent from the Sierra Club and The Syracuse University School of Information Studies, and a total of 173 completed questionnaires were returned (a return rate of 38%). The Earthcare Center mailed 188 questionnaires to federal government officials, foundations, foreign embassies, corporations, private voluntary organizations, international governmental organizations, missions to the United Nations and news organizations. 45 responses were received. Of the 266 questionnaires sent from Syracuse University to members of the Erovisional Environmental Information Division of the Special Libraries Association, to United States based non-governmental organizations and academic departments with competence for international development, 128 questionnaires were returned. Only highlights of the findings will be indicated here.

The majority of the respondents (seventy-six percent) thought an information center for international environmental policy affairs was needed. Over seventy percent indicated that they would like to have international information about environmental issues at least sometimes. The majority would

* A copy of the "Report on the Information Need Assessment Study sponsored by the Sierra Club Earthcare Center, July-August 1978, by Marta L. Dosa and Elizabeth A. Brindle, is included in the Appendix.

like to have access to environmental information from intergovernmental organizations, international non-governmental organizations, foreign governments, foreign non-governmental organizations and foreign industries.

In response to the question concerning kinds of sources, the majority would like to have access to quantitative environmental data: policy-related documents: technical documents; and legal, legislative, regulatory information concerning international environmental affairs.

The following types of service were favored by the majority: reference; loan of documents; lists of available documents; abstracts of available documents; literature searches on specific topics upon request; newsletter on new trends and developments in environmental information systems; referral to the location of international environmental documents; and referral to experts in international affairs.

Who should be served by the proposed information center? The majority felt that the services should be available to everyone. Sixty-six percent of the respondents suggested that there should be partial payment for special services such as literature searches. The majority (seventy-five percent) felt that the center should be operated by a non-governmental organization.

Comments and suggestions by respondents, covering a wide range of proposed services and resources for the center have been listed in the full "Report on the Information Need Assessment Study" which is available upon request.

2. Informal Interviews *

An informal discussion was held with individuals from each of the government agencies and private organizations listed below. In addition,

* In Washington Marta L. Dosa, in New York Research Assistant Patsy Faust conducted the interviews. Detailed documentation is available upon request.

letters and telephone inquiries were received from organizations indicated in a separate list. The notion that a feasibility study is needed in order to delineate the potential scope, resources, programs and location of an information center on the subject was supported virtually unanimously. Most felt that there is a need for such a center because currently international policy-related information is scattered in a great number of information systems and libraries. Looking for information on the topic is wasteful and cumbersome. Most interviewees felt that because of the extremely wide spread and diversified nature of the potential audience it was difficult to determine the scope and users of the proposed center, but suggested that once established and well publicized, the center would be heavily utilized. Many offered valuable insights and practical suggestions.

Interviews in Washington, D.C.

Environmental Protection Agency

International Affairs
Library Systems Branch

Department of Interior

Library

Library of Congress

International Organizations Section
National Referral Center
Science and Technology Division

National Academy of Sciences

International Affairs

National Library of Medicine

Administration

National Science Foundation

Behavioral Sciences

Department of State

Office of Environmental Affairs

World Bank

Office of Environmental and Health Affairs

Interviews in New York, N.Y.

American Museum of Natural History Library

Carnegie Endowment for International Peace

City University of New York, Morris Raphael Cohen Library

Columbia University, Geoscience Library

E.P.A. Region II Technical Library

Ford Foundation Library

National Audubon Society Library

New York Botanical Garden Library

New York Public Library, Cooperative Services Division

New York Public Library, Research Libraries,
Science and Technology Research Center

New York University Bobst Library

New York Polytechnic Institute, Spicer Library

The Rockefeller Foundation Library

UNDP Reference Library

UNESCO Library

Union Carbide Corporation, Linde Division, Marketing
Communications Department

UNITAR Library

United Engineering Center Library

U. N. Dag Hammerskjold Library

U.S. Energy Resources and Development Administration
Technical Health and Safety Laboratory Library

Other institutions contacted in New York:

Center for International Environmental Information

Cousteau Society

Environmental Information Center

Hotline International

Lockheed Information Services

Natural Resources Defense Council

Pace University

Rockefeller University

Scientific Institute for Public Information

Letters or Telephone Interviews

Ecological Analysts, Inc., Middletown, N.Y.

U.S. Congress, Environmental Study Conference, Washington, D.C.

International Union for Conservation of Nature and
Natural Resources, Morges, Switzerland

Minneapolis Public Library, Environmental Conservation Library

Center for Environmental Information, Inc., Rochester, N.Y.

Saint Cloud State College, Environmental Studies Program,
Saint Cloud, Minn.

Environmental Law Institute, Washington, D.C.

Devon County Education Department, Devon, England

Centre International de Recherche sur L'Environment et le Developpement, Paris, France

The Oceanic Society, Stamford, Conn.

Pace University, School of Law, White Plains, N.Y.

Clark University, International Development and Social Change Worcester, Mass.

Environmental Consulting Services, Cave Junction, Ore.

American Chemical Society, Department of Chemistry and Public Affairs, Washington, D.C.

U.S. National Oceanic and Atmospheric Administration, Environmental Science Information Center, Washington, D.C.

"Pete and Wildlife" Radio Program (CBS) Roger Caras and Donald Wall, Kew Gardens, N.Y.

U.S. National Agricultural Library, Exchange Unit

The World Bank, Office of Environmental and Health Affairs

3. Review of Other Studies

Although the proposed center is not envisioned as the nucleus of an internationally based, large-scale cooperative information system serving various countries through national focal points, studies concerning such systems with an interdisciplinary mission can provide important findings on potential user populations, existing resources and definitions of boundaries. A few examples will illustrate this kind of study.* The review showed that these systems do not focus on the international environmental policy area even if some information on this topic is included in each.

* Bibliographic citations of studies are enclosed in the "Notes" of this report.

The UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE (ECE) in 1971, considered a report on the "Feasibility Study on International Environmental Information Exchange." Most of the recommendations of the report, submitted by the ECE Secretariat, were implemented later by the United Nations Environment Programme's International Referral System (IRS). The ECE report stressed data on environmental conditions, legislation, measurement, policies and research as areas where information is especially needed. The following types of institutions were recommended as sources: statistical offices, research institutes, public authorities, and monitoring stations. Four useful annexes of the report contained (a) opinions of governments on international information exchange, (b) examples of methods for information exchange as applied in existing centers, (c) activities of other international organizations and (d) steps to be taken at the Stockholm Conference in 1972 in respect to information exchange.

The UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP) INTERNATIONAL REFERRAL SYSTEM (IRS), based on Recommendation 103 of the United Nations Conference on the Human Environment, Stockholm 1972, has been fully operational since January 1977. Activities are financed by the UNEP Fund and the governments of the participating countries. The system currently is a partnership of 87 countries, of which 48 have submitted nearly 6,300 sources of environmental information.* Twenty-six categories with 877 subsections represent the broad range of environmental issues covered by the referral service. The nature of the actual

* Progress Report on the IRS, April 3, 1978. (UNEP/GC/INFORMATION/7).

queries which have been handled between January 1977 and February 1978, are indicative of the subject emphases were contributed to the system. The main areas of inquiry have been pollution, chemical and biological agents, technology and industry, management and planning, atmosphere and climate, and monitoring and measurement. "Socioeconomic aspects" were represented by few queries. It is in this area, where environmental data are the most difficult to obtain and apply, and where user awareness of potential sources might be low. Socioeconomic aspects, however, are vital to environmental policy formulation, and relevant sources should be emphasized and disseminated by the proposed specialized information center. The new center of international environmental policy information then would become one of the most visible referral sources for the INS on the policy issue.

UNESCO's SCIENCE AND TECHNOLOGY POLICIES INFORMATION EXCHANGE SYSTEM (SPINES) has been defined as "a system for collecting, selecting, analysing and disseminating documents and factual data that have a direct bearing on policy-making, management, research and assessment in the field of science and technology." In the six-year preparatory phase (1970-1976) a feasibility study was carried out, a thesaurus was developed, tested and revised, a global list of relevant periodicals was published, and member states were queried concerning the need for the SPINES system. Of 54 replies 38 were favorable. The preparatory program is currently being implemented. The SPINES feasibility study confirmed the notion that policy-related information sources are scattered among many disciplines and professional fields of knowledge. The proposed information center would not duplicate SPINES but would utilize it for the benefit of its own clientele.

The INTERNATIONAL DEVELOPMENT RESEARCH CENTRE's DEVELOPMENT SCIENCES INFORMATION SYSTEM (DEVSIS), is a cooperative international information system for the development sciences. Each participating country and international organization accepts the responsibility to identify and record information about the literature generated within its own territory. The system, designed by a study team under sponsorship of the International Development Research Centre, Ottawa, has not yet been globally implemented. However, its in-depth preliminary design study, definitions of scope and users, indexing methodology and identification of the Canadian literature on economic and social development (Devindex Canada) have been extremely useful for our study.

In describing gaps in the development literature as well as duplicated efforts, the DEVSIS preliminary design study noted "This chaotic situation not only results in waste resources but it also ensures that the development community has no reliable access to the information which concerns it most" (INTERNATIONAL DEVELOPMENT RESEARCH CENTRE, 1976, p. 12). Embedded in the vast complexity of the international development literature are the vital information sources for environmental policies that can be easily missed unless they will be identified and accessed by the proposed center.

REVIEW OF EXISTING INFORMATION RESOURCES

Scattered information resources on international environmental policies are available through a great number of information centers, data bases, libraries and organizations. It is difficult to gain an overview of this confusing situation and a person wishing to utilize several sources must consult an array of directories and institutional guides. The problem is aggravated by the fact that each resource institution has a different set of conditions that govern its use.

The magnitude of the literature and data resources which fall under the broad category of "environmental information" can be indicated by even a single source: The U.S. Directory of Environmental Sources, published by the National Focal Point of the United Nations Environment Programme International Referral System. This inventory of sources registered with the IRS as of July 1, 1977 includes 1,114 United States based organizations. Over 5,000 organizations have been identified as potential resources, and new ones are added to the IRS registry all the time. How many of these collections contain international policy-related materials or data? Only actual tests of the collections by users with policy-related questions would determine the answer. However, in the IRS classification, policy issues cut across all 26 categories for subject attributes, and thus cannot readily be identified.

We have examined several directories, as well as sources of data bases, which have demonstrated the scattered nature of relevant resources. Some examples are:

A Directory of institutional resources, U.S. centers of competence for international development. U.S. A.I.D. Office of Programs and Methodology, Bureau of Technical Assistance, January 1975.

Directory of computerized environmental information sources. (K.H. Greer et al) Kentucky University, Institute for Mining and Minerals Research, October 1976.

Directory of libraries and documentation centers in the United Nations System, Geneva, U.N. Library, 1978.

Environmental programs of intergovernmental organizations, Martinus Nijhoff, 1978.

Environmentally oriented public interest/legal service organizations by Donald Auensen, Syracuse University, June 1977. (Manuscript)

Federal environmental data: A Directory of selected sources, Capitol Systems Group, Inc. November 1977. (Supported by NSF)

Information Industry Association, Information sources, The Membership directory, (Annual)

International environmental issues, a preliminary resource guide. U.S. E.P.A. Office of International Activities, December 1977.

Luedke, J.A., G.J. Kovacs and J.B. Fried, "Numeric data bases and systems" in Annual review of information science and technology, v. 12, 1977, White Plains, N.Y., Knowledge Industry Publications, Inc., 1977, pp. 119-181.

"Nonbibliographic data bases online" Online review, 2:2 (1978) pp. 125-146.

Research on Growth, An Inventory of efforts in the U.S. and elsewhere. Woodrow Wilson International Center for Scholars. Prelim. ed. 1974.

U.S. Directory of environmental sources, U.S. E.P.A. National Focal Point of the United Nations Environment Program, International Referral System. 2nd ed. September 1977.

U.S. Library of Congress. Congressional Research Service. Directory of environmental organizations and contacts, prepared by Steve Hughes and F.M. Scott. for the Environmental Study Conference. Washington, D.C. 1978.

Washington Information Directory, Congressional Quarterly, 1977/78.

An examination of these and other resource guides leads to the following observations:

- individuals and organizations concerned with environmental affairs and policies at the international level are ill-served by the resources scattered among many collections and information systems;
- there is both duplication of effort and gaps in the coverage;
- it can become very expensive to trace the relevant literature and find out about location and availability of documents and data files, and terms and cost of access;
- an information center functioning as both a filter against irrelevant information and a linkage with other resources from which relevant answers may be extracted is the only solution to the present confusing situation.

NOTES

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"Policy Analysis Syllabi," Policy Studies Journal, 7:1 (Autumn 1978).

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SOUTHEASTERN LIBRARY ASSOCIATION AND OAK RIDGE NATIONAL LABORATORY, Report of a Planning Conference for Solar Technology Information Transfer in Kentucky, Frankfort, Ky., September 11-12, 1978, Tucker, Ga., 1978.

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UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION, Science and Technology Policies Information Exchange System (SPINES), feasibility study, Paris, 1974. (Science policy studies and documents, No. 33).

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION, SPINES Pilot programme for the international exchange of information on the application of science and technology to development, Paris, June 10, 1977 (Unesco/NS/ROU/387).

UNITED NATIONS ENVIRONMENT PROGRAMME. GOVERNING COUNCIL. Progress report on the International Referral System for Sources of Environmental Information (IRS), Report of the Executive Director to the Sixth Session, Nairobi, May 9-25, 1978. April 3, 1978. (UNEP/GC/INFORMATION/7).

UNITED STATES. NATIONAL COMMISSION ON LIBRARIES AND INFORMATION SCIENCE. National Information Policy, Washington, D.C., Government Printing Office, 1976.

APPENDIX 1

REPORT ON THE INFORMATION NEED ASSESSMENT STUDY

Sponsored by the
SIERRA CLUB EARTHCARE CENTER
July/August 1978

Marta L. Dosa and Elizabeth A. Brindle

The assessment was undertaken as part of a study designed to examine the need for a special library and information service in the field of international environmental affairs, especially as they relate to environmental policy issues. The purpose of the survey was to find out if potential users of such an information service think it is needed, what kinds of information should be included, types of sources that should be included, types of service that should be provided, who should be served, the charge for service, which languages the documents should be in, who should operate the center and where it should be located. A cover letter explained the Earthcare Center's objective in sponsoring the study on the potential library.

A total of 454 questionnaires were sent from the Sierra Club Earthcare Center and Syracuse University School of Information Studies during the week of July 17, 1978. The questionnaires were to be returned by August 7, 1978.

The Earthcare Center sent out 188 questionnaires to federal government officials, foundations, foreign embassies, corporations, private voluntary organizations, international governmental organizations, missions to the United Nations and news organizations. 45 responses were received.

The questionnaires sent from Syracuse University can be broken down as follows:

	Sent	Returned
Members of the Environmental Information Division, Special Libraries Association	126	60
United States based non-governmental organizationals*	56	33
Academic departments with competence for international development**	52	19
Others***	32	16
	266	128

A total of 173 completed questionnaires were returned which is a return rate of 38%, a rate not unusual in mail surveys. 5 Questionnaires were returned unanswered due to lack of a qualified person to fill them out or incorrect address.

Question 1

The respondents were initially asked if they thought an information center for international environmental affairs was needed. The replies can be summarized as follows:

	Number of responses	Percentage of responses
YES	131	76%
UNDECIDED	32	18%
NO	10	6%
	173	100%

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* Included in: U.S. Environmental Protection Agency. Office of International Activities. International environmental issues, a preliminary resource guide, 1977.

** Included in: U.S. Agency for International Development. A Directory of institutional resources, U.S. Centers of competence for International Development, 1975.

*** Individuals connected with international environmental affairs at various organizations.

The following results are based on the responses of those respondents who indicated they thought such a center was needed and those were undecided about this issue.

Question 2

Are there times when you would like to have information on international aspects of certain environmental issues?

	Number of responses	Percentage of responses
FREQUENTLY	49	30
SOMETIMES	114	69.9
NEVER	2	1

Question 3

Are there times when you would like to have environmental information from international organizations?

	Number of responses	Percentage of responses
FREQUENTLY	37	23
SOMETIMES	123	76
NEVER	4	3
No Response	1	1

Question 4

Are there times when you would like to have environmental information from other countries?

	Number of responses	Percentage of responses
FREQUENTLY	43	26
SOMETIMES	119	73
NEVER	2	1
No Response	2	1

It is obvious that most of the respondents use international information about environmental issues at least sometimes and between 23% and 30% of them use that information frequently.

Question 5

What kinds of information would you like to have? (You may check more than one.)

Number of responses	Percentage of responses	
130	85	Environmental information from inter-governmental organizations (e.g., UNEP, OECD, Food and Agriculture Organization of the U.N., European Economic Community)
115	71	Environmental information from inter-national non-governmental organizations (e.g., International Union for Conservation of Nature, International Association Against Noise, International Union of Air Pollution Prevention Associations, World Tourism Organization)
118	72	Environmental information from foreign governments
94	58	Environmental information from foreign non-governmental organizations
96	59	Environmental information from foreign industries

As can be seen from the responses to the above question, the majority of the respondents would like to have access to all of the above information.

Question 6

To what kinds of sources would you like to have access? (You may check more than one.)

Number of responses	Percentage of responses	
84	52	Quantitative environmental data
117	72	Policy-related documents
108	66	Technical documents (research results, description of programs, methods, etc.)
100	61	Legal, legislative, regulatory information concerning international environmental affairs

74	45	Legal, legislative, regulatory information from foreign governments
41	25	Films and other audio-visual materials
12	7	Other (Please specify.)_____
1	.6	No Response

A majority of the respondents would like to have access to at least: quantitative environmental data, policy-related documents, technical documents, and legal, legislative, regulatory information concerning international environmental affairs.

Other suggestions include: covert action against industrial polluters; policy environmental statements from developing countries; conference proceedings; maps; computer tapes of environmental surveys and other large data banks of information, environmental education information; environmental health information; people's minds; U.N. Conference documents; financial support entities to meet costs of environmental impact analysis and/or problem-solving; and directories of environmentalists, environment groups, and special tracts.

Question 7

What type of service should an international environmental information center provide? (You may check more than one.)

Number of responses	Percentage of responses	
133	85	Reference
95	58	Loan of documents
117	72	Lists of available documents
102	63	Abstracts of available documents
100	61	Literature searches on specific topics upon request (on-demand searches)
91	56	Newsletter on new trends and developments in environmental information systems
103	63	Referral to the location of international environmental documents

61	37	Referral to quantitative environmental data sets
81	50	Referral to experts in international affairs
9	6	Other (Please specify.)_____
2	1	No response

The majority of the respondents would like the center to include all of the above services except referral to quantitative data sets. Other suggestions include: obtaining documents and furnishing them to the requestor; advocation and presentation of local/national and international environmental issues; environmental procedures to correct problems from time threshold decisions; photocopies over loans; referral to environmental education programs and experts; network of institutions and organizations working in the field; quantitative information on standards and enforcement; bibliographies; book reviews; duplication of materials on file; A-V library and information referral center; and translation services.

Question 8

Who should be served by an international environmental information center? (You may check more than one.)

Number of responses	Percentage of responses	
148	91	Academic institutions
120	74	Business
132	81	Government agencies
120	74	Industry
126	77	International organizations
124	76	Non-governmental organizations
107	66	Press and other media
111	68	Public

139	85	Research organizations
96	59	Special interest groups
6	4	Other (Please specify.)_____
2	1	No Response

The majority of the respondents would like everyone to be served by this information center.

Question 9

SHOULD THE SERVICE BE...

Number of responses	Percentage of responses	
26	16	Free to all
30	18	Paid for by subscription
12	7	Entire service paid for
108	66	Partial payment for special services (e.g. literature searches)
3	2	Other
10	6	No Response

Partial payment for special services is the most frequent choice to the respondents. Other suggestions include: vary the policy depending on the need and ability to pay; pay depending on use basis; free for general services and subscription for special services; paid by government and profit-making business and free to others.

Question 10

THE COLLECTION SHOULD INCLUDE DOCUMENTS IN

Number of responses	Percentage of responses	
47	29	English only
99	61	Other languages (Please specify.)
15	9	No Response

The majority of the respondents prefer that other languages also be included in the collection. The languages suggested include: Spanish, French, German, Russian, Portuguese, Chinese, Hindu, Swahili Arabic, Japanese, any language, U.N. languages, language of users, language of issue, language of issue and translation facilities. Many of the respondents suggested language of issue with facility for translation as well as using the languages of the U.N.

Question 11

Who should operate such an international environmental information center?

Number of responses	Percentage of responses	
58	36	A non-governmental organization
16	10	A federal government agency
25	15	An international governmental organization located in the United States
63	39	An international non-governmental organization located in the United States
12	7	Other (Please specify.)_____
17	10	No Response

If we combine the two types of non-governmental organization categories, the result would be that 75% of the respondents prefer to have a non-governmental organization operate such a center. Other suggestions include: University center; UN; and international non-governmental organization in France; not-for-profit center or clearinghouse; use the Institute of Latin American Studies at University of Texas as a model; a research center; an international governmental organization in a developing country; UNEP; and an organization of primary users.

Question 12

Where in the United States should this facility be located?

Number of responses	Percentage of responses	
29	24	New York City
73	60	Washington, D.C.
25	21	Other (Please indicate city or at least geographic location.)
26	21	No response

Washington, D.C. is the location most often chosen of the locations included. Other locations suggested were: Denver; Boston; University of Wisconsin; New York, N.Y.; San Francisco; Detroit; Buffalo, N.Y.; Houston; more than one location with branches; Durango, Colorado; Duluth, Minn.; Detroit, Ore.; Woods Hole, Mass.; Texas; Detroit; Jackson Hole, Wyo.; Africa; Latin America; Midwest; Chicago; and "anywhere."

The questions about location, who should operate the center, where it should be located and which languages should be included provide us with clear-cut answers. The questions about type of service, kinds of information, sources and frequency of use do not provide as obvious answers except to include everything and serve everyone. If we look at the responses to Questions 2 through 7 for different subgroups within the sample we can see some differences as to what kind of information and services might be provided depending on which audience is of primary importance. The first subgroup division that can be made is between the intermediaries (librarian or information specialist) between the information and the user and the end-users such as researchers, government officials, etc. There were 38 intermediaries who responded and 135 end-users.

Question 2

Are there times when you would like to have information on international aspects of certain environmental issues?

Librarians	End-Users	
%	%	
16	33	FREQUENTLY

Question 3

Are there times when you would like to have environmental information from international organizations?

Librarians	End-Users	
%	%	
12	29	FREQUENTLY

Question 4

Are there times when you would like to have environmental information from other countries?

Librarians	End-Users	
%	%	
19	31	FREQUENTLY

It appears that the end-users would more frequently like these types of information than librarians.

There was little difference in the kinds of information (Question 5) that the two groups would like to have. However there are differences in the sources the two groups would like to have access to, especially quantitative environmental data, policy-related documents, technical documents and legal, legislative, regulatory information concerning international environmental affairs.

Question 6

To what kinds of sources would you like to have access: (You may check more than one.)

Librarians %	End-Users %	Difference %	
66	44	22	Quantitative environmental data
57	80	23	Policy-related documents
85	56	29	Technical documents (research results, description of programs, methods, etc.)
71	56	15	Legal, legislative, regulatory information concerning international environmental affairs
45	46	1	Legal, legislative, regulatory information from foreign governments
28	26	2	Films and other audio-visual materials

There were differences in the types of services that the two groups thought should be provided.

Question 7

What type of service should an international environmental information center provide? (You may check more than one.)

Librarians %	End-Users %	Difference %	
93	80	13	Reference
71	51	20	Loan of documents
72	71	1	Lists of available documents
67	60	7	Abstracts of available documents
67	58	9	Literature searches on specific topics upon request (on-demand searches)

66	51	15	Newsletter on new trends and developments in environmental information systems
76	56	20	Referral to the location of international environmental documents
52	30	22	Referral to quantitative environmental data sets
59	45	14	Referral to experts in international affairs

The most important of these differences are concerning loan of documents, provision of a newsletter, referral to international environmental documents and quantitative data sets and experts.

Another way to split the sample into subgroups is to group those who were undecided about the need for an information center together and those who responded yes to such a center into another group. There were 32 respondents who were undecided and 131 who responded YES. Only Questions 2 through 7 showed differences of consequence for these two groups.

A greater percentage of those who responded yes would like international information frequently than those undecided.

Question 2

Are there times when you would like to have information on international aspects of certain environmental issues?

Undecided	Yes	Difference	
%	%	%	
9	35	26	FREQUENTLY

Question 3

Are there times when you would like to have environmental information from international organizations?

Undecided	Yes	Difference	
%	%	%	
13	25	12	FREQUENTLY

Question 4

Are there times when you would like to have environmental information from other countries?

Undecided	Yes	Difference	
%	%	%	
6	31	25	FREQUENTLY

There are a number of differences on the kinds of information that two groups would like to have especially: information from international governmental organizations, international non-governmental organizations, and information from foreign industries.

Question 5

What kinds of information would you like to have? (You may check more than one.)

Undecided	Yes	Difference	
%	%	%	
63	90	27	Environmental information from intergovernmental organizations (e.g., UNEP, OECD, Food and Agriculture Organization of the U.N. European Economic Community)
53	75	22	Environmental information from international non-governmental organizations (e.g. International Union for Conservation of Nature, International Association Against Noise, International Union of Air Pollution Prevention Associations, World Tourism Organization)

69	73	4	Environmental information from foreign governments
53	59	6	Environmental information from foreign non-governmental organizations
44	63	19	Environmental information from foreign industries

There are also differences in the sources they would like access to, in particular, technical documents; legal, legislative regulatory information concerning international environmental affairs and from foreign governments.

Question 6

To what kinds of sources would you like to have access? (You may check more than one.)

Undecided	Yes	Difference	
%	%	%	
47	53	6	Quantitative environmental data
78	70	8	Policy-related documents
53	70	17	Technical documents (research results, description of programs, methods, etc.)
53	63	10	Legal, legislative, regulatory information concerning international environmental affairs
34	48	14	Legal, legislative, regulatory information from foreign governments
19	27	8	Films and other audio-visual materials

The two groups differ on many of the types of service that should be provided, particularly the provision of a newsletter.

Question 7

What type of service should an international environmental information center provide? (You may check more than one.)

Undecided %	Yes %	Difference %	
66	89	23	Reference
56	59	3	Loan of documents
53	76	23	Lists of available documents
53	65	12	Abstracts of available documents
47	65	18	Literature searches on specific topics upon request (on-demand searches)
28	63	35	Newsletter on new trends and developments in environmental information systems
66	63	3	Referral to the location of international environmental documents
47	35	12	Referral to quantitative environmental data sets
41	52	11	Referral to experts in international affairs

Examples of suggestions by respondents

- Better and wider communication of what information is now available and increased or expanded coverage in libraries and information centers already in existence.
- Identify types and sources of information and add them to the already existing information channels.
- Suggest information center action-line phone number or Post Office box.
- Collect documents and have them readily available from a single location
- Suggest use as a base the University of Wisconsin/Green Bay library that has an excellent collection of such materials.
- Need computer tapes of environmental surveys and other large data banks of information.

- Begin as partial service as referral center together with a newsletter or other communication device, then collect what is not available elsewhere.

- Center should be advocate of "presenting the other side."

- Establish distributed clearinghouses like ERIC in various locations.

- Use Institute of Latin American Studies at University of Texas at Austin as model set-up, establish ties with a university.

- NTIS seems to be fulfilling some of these requirements.

- International Joint Commission has been very helpful for information from Canada.

- It should include Toxicological data.

- Federal government agencies have start on identification of environmental data sets; further identification would be helpful.

- Serve as a switching center.

- East-West Center at the University of Hawaii may have such a center.

- NRDC (Washington, D.C.) has access to these kinds of information.

- Collection of major treaties and additional information on developing countries might be useful.

- Construct directory of environmentalists, groups.

- Need collection on environmental affairs of scientific and educational organizations.

- Resources for the future type of organization to handle such a center.

- Might get some university center to handle certain facets related to food and agriculture under new Title XII of the Foreign Assistance Act.

- Arrange seminars.

- IIED assembled some of these kinds of materials, might serve as nucleus.

- World Environmental Report contains some of this information.

- Organize seminars of documentation.

- Seminars, lectures, movie showing and exhibitions are useful for raising public awareness on environmental issues.

- Should be an organization of primary users.

APPENDIX 2

The following appendices were included in the report submitted to the Sierra Club. Because of cost limitations they could not be reproduced here

Governmental and Non-governmental organizations concerned with the Global Environment - Located outside of the United States

National and International Environmental, Policy-oriented Organizations in the United States

Other Publications put out by IGOs

Environmental Periodicals

Examples of bibliographic and numeric data-bases

Examples of Documents

Bibliography of Selected U S Government Documents Concerning National and International Environmental Policy - by Mary Neighbours

Bibliography on Developing Countries and Environmental Information - by Susan MacMullin

Prototype instrument for the evaluation of an information system